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NEW MOTHS OF THE FAMILY GEOMETRIDÆ.

BY JOHN A. GROSSBECK.

1. *Gymnocelis mellisa*, new species.

Expanse, 15 mm. Palpi and front deep brown, both with a few white scales; vertex with mixed brown and light colored scales. Thorax and first abdominal segment dirty yellowish-white, mixed with a few white scales; remainder of abdomen brown, whitish at the apex of the segments. Ground color of wings dirty whitish overlaid with brown, and washed with brunnescous at the base, radial vein, inner margin and outer margin of primaries, and at the anal angle of secondaries. Transverse lines of primaries composed of the light ground color, edged by the overlaying brown scales. All extend out from costa to a little less than one third across the wing, then bend sharply inward and run irregularly and obliquely to inner margin. Basal line single, edged internally on costa by deep brown. Intradiscal line one third out from base, geminate, edged externally before angle by a conspicuous brown mark which unites with the linear discal spot. Median line geminate, passing just outside the discal spot. Extradiscal line begins one third in from apex and is the broadest and best defined line on the wing. Subterminal line single, narrow, defined and sharply denticulated throughout its course. Terminal line brown, interrupted at the veins, the parts slightly drawn inward between the veins forming distinct triangles on the anterior half of the wing. Fringe gray, brown checkered on inner half. Secondaries with six transverse lines, evident on inner edge of wing, the outer two faintly traceable to the costa running parallel with the outer margin. Terminal line as in fore wings but the triangles not well marked. Discal spot brown, moderate in size, somewhat diffuse. Beneath, paler than above, evenly shaded with brown on costal region and outer area of primaries. The more conspicuous lines of the upper side are feebly reproduced. Discal spots prominent.

Type. — One male in my cabinet.

Habitat. — Minnehaha, Arizona, September 3 (Hudson).

This species bears a somewhat general appearance to *Eupithecia niveifascia* Hulst but the generic characters will serve to distinguish it from that species.

2. *Gymnocelis discoidalis*, new species.

Expanse, 16 mm. Head whitish becoming darker anteriorly till the apex of the conic front is dark brown; palpi brown, projecting a little beyond the front. Thorax whitish, peppered with black scales posteriorly; a black spot on the middle of each patagium. Abdomen whitish, sparsely scattered over with black scales; apex of segments black dorsally; black lateral marks forming a broken line. Ground color of both wings whitish. Basal, intradiscal and median lines of primaries barely indicated by a scattering of black scales, the two latter marked on the costa by a diffuse patch of black scales. Immediately outward of the median line is the extremely large, round, black, discal spot, one millimeter in diameter and very contrasting. Extradiscal line begins on costa in a black triangular patch of scales, extends outward to M_1 , bends rather evenly around to Cu_2 , then is once feebly

dentate to inner margin. Following this are two narrow lines running parallel with it, the outer one blending with the outer area. External to this are three blackish patches, the first on the costa, the second between M_1 and M_3 and the third near the anal angle. Subterminal line white, dentate, vaguely indicated, running outside the dark patches. Terminal line black, interrupted. Secondaries with two broad, zigzag blackish lines crossing the wing outside the discal spot; these are best marked on the lower two thirds of the wing. Between them is an ill-defined, narrow line. Basal part of inner edge with scattered black scales which tends to form a patch and an intradiscal line. Subterminal line white, bordering the outer edge of the second of the broad black lines. Terminal line as in fore wings. Discal spot round and moderate in size. Beneath, both wings whitish, the basal half of primaries shaded with gray. The black lines of above are clearly reproduced and the discal spots are large and of one size on both wings — smaller than that above on primaries, larger than that on secondaries above.

Type. — One female in Academy of Natural Sciences, Philadelphia.

Habitat. — Carr Canyon, Huachuca Mts., Cochise Co., Arizona, in August (Dr. Skinner).

Easily recognizable by the extremely large discal spot of primaries on a whitish background.

3. *Gymnocelis artestata*, new species.

Expanse, 18 mm. In the ornamentation of the primaries this species is very like *Eupithecia huachuca* described below. The extradiscal line is more angular near the costa than in that species and decidedly more denticulate below this angle but seems otherwise the same. The secondaries are very different from those of *huachuca*. A narrow brown line begins on the costa a little beyond the center and extends outward in a straight line to vein M_2 , then bends, rather sharply, and runs parallel with outer margin for a short distance and bending again runs to middle of inner margin. On the inner edge within this line three cross lines are indicated but these extend but a short distance into the wing. Beyond the line a vaguely marked, denticulate, subterminal brown line runs completely across the wing almost parallel to the outer margin. Outwardly it is edged with dirty white. Terminal line dark brown, even, broken at the veins. Discal spots linear, prominent. Beneath, the lines on the primaries are quite plainly reproduced on the outer portion of the wing. Secondaries whitish, the intradiscal and rectangular extradiscal lines prominent and completely crossing the wing. Two fainter lines between them are indicated on the costa and inner margins, but almost or quite disappear before reaching the discal spot. Subterminal line indicated by brown dots on the veins. Terminal line as above but fainter. Discal spots present on both wings, dark brown, linear.

Type. — One female in Academy Natural Sciences, Philadelphia.

Habitat. — Carr Canyon, Huachuca Mts., Cochise Co., Arizona, in August (Dr. Skinner).

Easily recognized by the peculiar course of the extradiscal line on the secondaries.

NOTE ON THE GENUS *GYMNOCELIS*, MAB.

The genus *Gymnocelis* as defined by Dr. Hulst is distinguished from *Eupithecia* (= *Tephroclystia*) chiefly by the absence of the upper pair of spurs on the hind tibiæ, but also by the possession of a conic tuft of scales on the front. The invalidity of this genus suggested itself to me at the time I attempted to place generically the species I described as *Gymnocelis remorata*. Nine of the eleven females of that species then in hand each possessed a minute pair of upper spurs as well as the fully developed terminal ones. This discovery led to an examination of all the specimens of *Gymnocelis* accessible to me, which fortunately included types of three of the four described species, and a representative of the fourth. The result was as follows:

G. desperata Hulst. The male type had two pair of spurs, the upper pair minute.

G. minuta Hulst. The two male types had each but a single pair of spurs. A third example in my own collection agreed with this.

G. inferior Hulst. The single type was in poor condition, being covered with shreds of fungi, and neither of the hind legs were present.

G. gypsata Grote. The single male examined had two pair of spurs, the upper pair very small.

G. remorata Gross. Seven males and two females had one pair of spurs; nine females had two pair, the upper ones rudimentary.

Thus it appeared, that as far as this character was concerned the genus must fall in with *Eupithecia*. The next character, the conic frontal tuft, was then examined and it was found that *gypsata* and *desperata* had it well developed, as did also *remorata*; in *minuta*, however, the only species that agreed with Hulst's generic diagnosis in that it had but a single pairs of spurs, the front was not protuberant in the least! Much could not be seen of this structure in *inferior*, but it appeared to be undeveloped. It seemed, therefore, inevitable that the genus must fall, but before casting it into synonymy I examined some two hundred specimens of the genus *Eupithecia* representing upwards of fifty species. The result was that the peculiar tuft was found well developed in only one species, *E. raveocostaliata* Pack., and to a lesser extent in *zygadeniata*, *longidens*, *edna* and a few others, and that the spurs were full-sized or nearly so in every species examined. So, while it appears that the frontal tuft can hardly be used as a generic character in this case, the material reduction in size of the upper posterior tibial spurs or their total absence might be, and I have

taken this view in describing the above species, especially in view of what Mr. L. B. Prout has said concerning the larva of the European species and type of the genus in a recent number of the "Entomologist."

All of the three species named above have the second minute pair of spurs referred to.

4. *Eupithecia huachuca*, new species.

Expanse, ♂ 15 mm., ♀ 16.5 mm. Palpi and inferior portion of front dark brown; remainder of front, vertex, thorax and abdomen fuscous-gray. Palpi slender from above, projecting half the length of the head beyond the front. Thorax and abdomen mottled with brown and some ochreous tinged scales. Color of wings gray overlaid with dark fuscous scales, the transverse lines of the ground color appearing as whitish lines on a darker background. Primaries with basal line single, evenly curved and edged internally with brown. Intradiscal line geminate, with two large outward denticulations before reaching inner margin. Median line geminate, rounding the discal spot outwardly and subparallel to intradiscal line. The area between the two lines dark shaded on the costa. Extradiscal line also double, begins on costa one third in from apex, extends outward to M_1 , then bends rather roundly inward and runs to inner margin, being twice denticulate just before reaching that edge. In the male these denticulations are hardly indicated but are plainly shown in the female. Internally the extradiscal line is edged with blackish, conspicuously so on the costal third. Externally it is followed by a dark band which extends to the subterminal line and is centrally traversed by an indefinite whitish line. Subterminal line white, zigzag at costa, regularly scalloped below this, the preceding dark band filling the resultant acute angles. Terminal space gray or dark brownish. Terminal line black, interrupted at veins. Discal spot oval, conspicuous. Fringe faintly checkered. Secondaries darker toward inner margin, with four curved and slightly waved cross lines, one intradiscal and three extradiscal, the inner of these latter three close to the small discal spot. All of these lines are plainly indicated on the inner edge and are only with difficulty traced across the wing. Subterminal line white, zigzag. Terminal line brown, distinct, interrupted. Fringe checkered. Beneath, primaries suffused with fuscous on basal area and especially near costa, the median, extradiscal and subterminal lines broader than above, the space between them dark brown and appearing as the true lines of the under side. Secondaries divided in halves by the brown shade line within which the wing is darker than outside it. Subterminal line indicated by the dark shade line that precedes it. Terminal line conspicuous. Discal spots present on all wings.

Types. — Male in the collection of the author, female in the Academy of Natural Sciences, Philadelphia. Taken by Dr. Henry Skinner. Other specimens received from the same source after the above was written have been made co-types: they do not differ in the least from the types.

Habitat. — Carr Canyon, Huachuca Mts., Cochise Co., Arizona, August.

Nearest to *E. misturata* Hulst ; differing chiefly in the course the transverse lines assume after leaving the costa ; in *misturata* they go outward rather than downward as in *huachuca*.

5. *Eupithecia pretansata*, new species.

Expanse, 20 mm. Head, thorax and abdomen grayish-brown mottled with darker brown, the latter with a narrow black cross band posteriorly on the first segment ; palpi moderate in length ; antennæ finely ciliated, annulated with gray and dark brown. Primaries dark brown over a gray background and crossed by a number of subparallel, poorly marked lines. Basal line brown, begins on costa a short distance out from root of wing and extends irregularly to inner margin ending far in at the base of the wing. This is followed by a band of gray and then come three narrow brown lines, best marked on lower part of wing, enclosing two broader gray lines. The extradiscal line begins on costa less than two thirds out from base, extends outward to vein R_5 , then obliquely inward to inner margin being twice feebly dentate. Two other poorly defined brown lines follow and a geminate grayish line is formed between them. The central area of the wing is darker than the two bounding ones and a dark brown median line is vaguely indicated running through the middle and passing the discal spot internally. Subterminal line whitish, dentate. Terminal line fine, brown, interrupted. Discal spot black, linear. Secondaries grayish with fine brown lines beginning on the inner edge and running evenly inwardly, but all except the fourth from the base disappear before reaching the middle of the wing. The fourth extends almost to the costa and is slightly waved. Terminal line as in fore wings. Discal spot brown, longer than broad. Beneath, primaries gray, extradiscal line showing as a geminate white line ; other lines scarcely evident. Secondaries whitish-gray, intradiscal, median and extradiscal lines rather well marked, the first two scarcely reaching the costa, the last curved quite far inward before meeting costa. Discal spots on all wings, linear, dark brown.

Type. — One female in the collection of the Academy of Natural Sciences, Philadelphia.

Habitat. — Carr Canyon, Huachuca Mts., Cochise Co., Arizona, in August (Dr. Skinner).

6. *Eupithecia purpurissata*, new species.

Expanse, 20–22 mm. In wing form like the ordinary type of *Eupithecia*, — wings not unusually extended nor unusually broad. Front slightly protuberant, palpi extending a little beyond the front. Entire moth above including palpi, front, antennæ, etc., an even purplish-brown. Primaries without markings save a rather large, round, black discal spot and a terminal line indicated by a heightening in the ground color. Secondaries slightly paler toward base and showing a small discal dot and a terminal line as in fore wings. On the inner edge are faint indications of six transverse lines which extend only a short way into the wing. Beneath, all wings paler especially basally, and exceedingly faint indications of a geminate extradiscal and median lines are present on the primaries and several ill-defined, evenly rounded lines cross the secondaries. Discal spots small, scarcely discernible.

Types.—♂ in Rutgers College collection, ♀ in the author's collection; co-types in the Brooklyn Institute Museum.

Habitat.—Monterey Co., Cal.

7. *Eupithecia emmedonia*, new species.

Expanse, 17 mm. Palpi short, scarcely extending beyond the evenly rounded front, black with a few white scales. Head light gray, the lower part of front and space between the antennæ black. Thorax whitish. Abdomen brown with intermixed whitish scales. Ground color of wings almost white, the primaries rather long and narrow and with two contrasting blackish bands crossing the central portion of the wing besides the basal line. The first of these bands begins broadly on the costa just inward of the middle and extends to the cell, then becomes very broad and with an even sweep runs far inward, becoming narrower as it proceeds and ends on inner margin one fourth out from the base. The second is narrower, begins on costa as far in from apex as the first is out from the base and runs almost parallel with it to inner margin. Jet black scales are on the veins within these bands, and one on the first band is in the center of the cell. The basal line is black and extends irregularly from costa to inner margin. A narrow line vaguely indicated is present running along the outer side of the second band. External half of outer area shaded with blackish but broken with subapical dashes of ground color, and a white subterminal line runs rather evenly through it. Terminal line black. Fringe gray. Secondaries with two even bands continuous with those of fore wings but which almost disappear at costa. Anal angle shaded with black and showing the termination of the whitish, denticulate subterminal line, the remainder of which is lost in the pale ground color above the anal angle region. Terminal line blackish, best marked toward and at anal angle. Beneath, both wings light gray shaded with darker gray toward the base, the bands of upper side indicated by black spots on the veins.

Type.—One male in the Brooklyn Institute Museum received through Mr. Jacob Doll.

Habitat.—Monterey Co., Cal.

Readily distinguished from all described species by the white ground color across which two contrasting blackish lines extend.

8. *Rheumaptera medeifascia*, new species.

Expanse, 26–28 mm. Palpi pale luteous, tipped at apex with dark brown; vertex and front dark brown with intermixed luteous scales. Thorax variegated with white, luteous and brown scales. Abdomen pale ochrey with numerous intermixed brown scales and sometimes a pair of brown dorsal spots on the anterior segments. Ground color of wings sordid luteous. The basal and outer fields of primaries separated by a broad brown median fascia which begins broadly at center of the costal margin and becomes narrower as it proceeds across the wing to inner margin; the internal edge of this fascia is evenly curved from one margin to the other, the external edge is outcurved to center of wing, then faintly incurved and straight to inner margin. Basal area overlaid with brown, darker toward root of wings, paler outwardly. Basal line dark brown, double, irregular in its course and scarcely to be traced through this

dark portion of the wing; it is followed by a diffuse whitish band. Intradiscal line formed by the ground color, geminate, the outer line bordering the inner edge of the median fascia with which both are parallel. Inner portion of outer area occupied by a broad band of ground color which is sometimes traversed through its center by a pale brown line. Outer portion of area brownish, paler internally and somewhat broken into anteriorly by the ground color. A white line passes through the center from costa to internal angle. Terminal line deep brown, broken at the veins and in the center of the cells. Discal spot large, black, oval. Secondaries with the lines and shades of outer half of primaries faintly repeated from inner edge to center of wing. Terminal line as in fore wings but somewhat scalloped. Discal spot present, small. Beneath, pale luteous, the darker ornamentation of above reproduced in ochre. Discal spots small on all wings but distinct. Terminal line as above.

Types. — Two males from Mr. Frank Haimbach of Philadelphia, one of which he has kindly allowed me to retain.

Habitat. — Huachuca Mts., Arizona, in July (H. A. Koeber).

This species has the general aspect of a *Petrophora* and approaches *Hydriomena mirabilata* Grt. in style of markings, but is quite different from that species both in general color and in the course of the transverse lines.

9. *Cænocalpe delicata*, new species.

Expanse, 26–28 mm. Palpi brown; head brown with deep carmine scales, especially on the vertex; thorax, except the patagia which are brown with mixed carmine scales, and abdomen yellowish-brown. Both wings pale translucent fuscous, considerably darker on costal and apical areas of primaries and washed over with a delicate pink hue, which in the darker portions shows as prominent carmine scales. Costa of primaries marked by four large, white, quadrangular spots, the third from the base lengthened longitudinally, the fourth continued in a broad line which crosses the wing, extending in an even outward curve almost to center of wing, then almost straight to inner margin. In this pale band the pink color shows up prominently below the costal area. There is a vague indication of an oval discal spot. Fringe brown, traversed by two fine pink lines. Secondaries evenly colored except at extreme outer edge where it is brownish. Beneath, the pattern on the primaries above is reproduced, the darker portions being still darker and more mixed with red while the white is a little obscured. Secondaries much darker than above and heavily suffused with reddish especially on outer half. There are two elongate, white marks, heavily edged outward with brown a little beyond the middle of the wing, one beginning on costa and extending in a straight line toward anal angle, the other commencing on inner edge and running toward the apex. These if continued would meet to form a single complete band, angled in the middle, but in none of the specimens before me are the marks connected. Discal spot small, linear.

Types. — Four males and five females in my own collection. Co-types will be placed in Rutgers College collection.

Habitat. — Stockton, Utah, Sept. 12 (Spalding).

This species is nearest to *Cænocalpe cænonymphata* Hulst which it closely resembles from above except that the cross line is not sharply angulated as in that species. Beneath, the markings on the secondaries are very different, the transverse band in *cænonymphata* being much nearer the base of the wing, continuous and rectangled and edged inwardly instead of outwardly with brown.

10. *Sciagraphia conarata*, new species.

Expanse, 13-15 mm. Body and wings above pale flesh color, the costa of primaries marked by small, slaty-brown flecks, and atoms of the same color are scattered over the outer area; the hind wings paler basally and have also a scattering of grayish atoms. Primaries crossed by three transverse lines slaty-brown in color on the costa, thence orange-pink to inner margin. The first of these begins over one fourth out from base, runs outward to cell, then curves inward and extends evenly to inner margin. The second begins almost at the center of the costa, runs outward to below the cell, then curves inward and outward again, ending near the middle of the inner margin; this line is a little wider and more diffuse than the others. The third begins on the costa one third in from apex, runs outward to M_1 , then twice sinuous to inner margin ending one third in from anal angle; this line is marked on veins M_1 to Cu_1 by a small black spot and sometimes two or more of these connect. A diffuse spot on the median line within the cell indicates a discal spot. Subterminal line an irregular whitish line running through the outer area. Terminal line a series of intervenular dots. Fringe pale, somewhat checkered. Secondaries with a small brown spot on outer two thirds of inner margin marking the origin of a faint pinkish transverse line. Terminal line as in primaries. Discal spot moderate in size, not prominent. Beneath whitish, sprinkled with brownish atoms and with a broad brownish outer margin to both wings. Discal spots on all wings.

Types. — Three females in the writer's collection one of which will be placed in Rutgers College collection.

Habitat. — Yavapai Co., Arizona, May 22-29 (Hudson).

11. *Sciagraphia parcata*, new species.

Expanse, 23-25 mm. Head, body and wings dirty whitish with a faint yellowish cast; both wings with a sprinkling of brown scales. Primaries with three equidistant, incomplete, faint, brownish cross lines. Intradiscal line faint, outcurved, rather strongly so at discal cell, marked on costa and veins by a distinct brown spot. Median line vaguely indicated, most distinct from costa to cell and at inner margin. Extradiscal line almost continuous, extends outward from costa to M_1 where it forms an acute angle, thence proceeds gently sinuous across wing making a rather bold inward and outward curve just before reaching inner margin. The line is marked on the costa by a large brown spot and on veins M_1 to Cu_2 by smaller spots of the same color. Outer area with a large pale brownish blotch at costa midway between extradiscal line and apex, another in center of area bordering the same line and two fainter and equally large ones at outer margin. Subterminal line an indefinite whitish shade running between these four blotches — two on each side. Terminal line broken at the

veins and sometimes reduced to a series of dots. Discal spot not very distinct. Fringe checkered white and gray. Secondaries with a single submedian, irregular, brownish line, most distinct toward inner margin and marked by a brown spot on some of the veins. Terminal line and fringe as in fore wings. Discal spot brown, distinct. Beneath whitish on inner two thirds with a scattering of pale brownish scales. Extradiscal line repeated, followed by a narrow strip of ground color, the remainder of outer area pale brown with the blotches of above reproduced in it. Secondaries like primaries save that it is the submedian line that is reproduced. Discal spots on all wings prominent.

The above describes the female type more particularly; a co-type is much the same in markings but the cross lines are almost absent and are indicated by the brown spots by which the lines are marked.

Types. — Two females in the author's collection.

Habitat. — Yavapai Co., Arizona, May 23 and 29.

12. *Euemera angularia*, new species.

Expanse, 30 mm. In wing form differs from the described species of the genus in being obtusely angled on primaries at vein M_3 and acutely angled and extended on secondaries at the same vein. Head, thorax and abdomen pale creamy-yellow. Wings concolorous, the primaries shaded with ochreous outwardly and costally and both wings speckled with numerous brown transverse strigæ, especially heavy on outer half of secondaries. Fore wings crossed by a single rather broad brown line which is obscurely divided by a faint and somewhat broken line of gray scales; it begins on the costa one third in from apex, runs curvedly outward a short distance and forming an acute angle extends to inner margin in a series of slight irregular, inward scallops ending one third in from the anal angle. Discal spot small, brown, linear. Fringe brown. Hind wings also crossed completely by a single line corresponding to that on the fore wings. It is a pale brown, extends across the wing a little outward of the middle and is irregular throughout its course, being as a whole straight except for the curve from costa. A little below this line a still paler shade line departs from it and thence diverging runs to the inner margin. Discal spot absent. Fringes as in primaries. Beneath, paler, the brown strigæ consequently showing up more prominently. Strigæ entirely absent from inner areas. The lines of the upper side are quite strongly reflected, that on the fore wings broadening at the costa. Discal spot present on fore wings; absent on hind wings.

Type. — One fine male in the Academy of Natural Sciences, Philadelphia.

Habitat. — Carr Canyon, Huachuca Mts., Cochise Co., Arizona, in August (Dr. Skinner).

Differs decidedly from its congeners by the angulated wings and by the transverse line of primaries being bent inwardly near the costa instead of at the center of the wing.

13. *Phengommatæa spoliata*, new species.

Expanse, 34–38 mm. Head, thorax, abdomen and fore wings of male dark buff, the head somewhat lighter than the rest; hind wings much paler outwardly, shaded

with pale buff. Head and body of female pale straw yellow, hind wings concolorous, fore wings darker. Two broad purplish brown lines cross the primaries, the outer or extradiscal edged externally with pale yellow. Intradiscal line broad, somewhat diffuse throughout, begins on costa over one third out from base and is evenly outcurved to inner margin ending a little farther in on that margin than on costa. A discal spot is barely indicated by a heightening in the ground color. Extradiscal line begins on costa a little way in from apex as a narrow line and extends wavyly inwardly, becoming wider as it proceeds, to M_2 , then forms an outward rectangle and continues obliquely inward, turning out again before reaching inner margin. On secondaries a single broad line concolorous with those on primaries but faint and diffuse begins on the inner edge a little below the middle and extends inwardly curved to center of wing, here it fades out in the male but can be traced as an outward and then inward curve to costa in the female. Beneath, both sexes are uniformly pale creamy yellow on all wings.

Types. — Male in Brooklyn Institute Museum (J. Doll); female in the author's collection.

Habitat. — Monterey Co., Cal.

This handsome species differs decidedly from *P. edwardsata* Hulst in the course of the intradiscal line. In *edwardsata* this begins at the center of the costa and extends far out toward the outer margin of the wing, then turns inward and runs sinuously to inner margin. In *spoliata* this line does not begin out so far on the costa and is evenly curved throughout. The extradiscal line is approximately the same in both.

14. *Alcis addendaria*, new species.

Expanse, 34–36 mm. Head, thorax and body gray; front, palpi and apex of abdominal segments black. Ground color of wings light, whitish-gray in the male darker in the female. Basal line not apparent. Intradiscal line present on costa one third out from base as a black oblong mark directed toward anal angle, through the discal cell it is obsolete or only vaguely indicated, is marked on the cubital vein by a single spot, again fades out for a short distance and reappears very strongly near the anal vein and sweeps far in on the inner margin. In some specimens this line is internally edged with a diffuse shade of brown separated from it by a line of the ground color. Extradiscal line begins on costa less than one third in from apex and is represented by a series of black venular spots which are more or less connected by a diffuse line. Together they form a denticulate line, the spots at the apices of the denticulations. From the costa it extends downward and roundly outward, then sweeps far inward ending at the center of the inner margin. Inward of this line on the inner edge the median line is indicated and occasionally a remnant of this is present running through the diffuse patch of brown scales which represents the discal spot. Outward of the extradiscal line and separated from it by a line of ground color is a more or less defined broad, brown band. This is followed by a narrower band of ground color and the remainder of the area is darker again and traversed through its center by a denticulate, white line. Terminal line brown, evenly, outwardly scal-

loped. Fringes checkered brown and white. Secondaries with only one prominent brown line crossing the wing outward of the linear discal spot. This is curved gently inward and outward before reaching the inner margin and is marked heavily on the veins. Outward of this line are the same brown shade bands with white denticulate line and terminal scalloped brown line arranged as described for the primaries. Beneath, both wings are almost uniformly whitish-gray, somewhat brownish on the costa and subapical portions of primaries. A large, oval, brown discal spot on fore wings, but that on hind wings scarcely indicated.

Types. — Eight males and one female in the author's collection. Co-types will be placed in Rutgers College collection.

Habitat. — Stockton, Utah, July 2-14, 1907.

15. *Selidosema anastomosaria*, new species.

Expanse, 31.5-35 mm. Head white with a blackish cross band between the bases of the antennæ and another across the middle of the front. Thorax white with a few black scales; collar blackish. Abdomen banded black and whitish. Ground color of wings whitish shaded with pale, dirty ochereous and sprinkled over rather sparsely with brown atoms. Primaries with three prominent, brownish-black transverse lines, the intradiscal, median and extradiscal. Basal line indicated on costa by a distinct mark of the same color. Intradiscal line begins one third out from base on costa, extends broadly outward to edge of cell, bends inward at right angles and is thence somewhat scalloped to inner margin, the last scallop projecting quite far outward. Median line more diffuse, begins from a large, squarish patch at middle of costa, extends through discal spot and then runs obliquely inward taking an irregular course and almost meeting the projecting scallop of the preceding line. Extradiscal line originates on costa as far out from median line as the intradiscal line is inward of it and in general extends roundly outward, then sweeps inward anastomosing with median line between the cubitus and anal veins, and then runs shortly outward to inner margin; between the veins it is inwardly scalloped, those in the central portion being less strongly curved, and the angles extend in black points outward along the veins. Externally of this line a broad band of the ochery ground color runs parallel with it. Subterminal line white, strongly dentate, subparallel to outer margin; internally of it a large patch of brown scales appears between veins M_1 to M_3 and sometimes another equally as large at the costa. Terminal line blackish, evenly scalloped around the veins. Fringe gray divided by a brown line. Secondaries with two brownish-black lines in the central portion of wing which begin on inner margin and extend strongly over two thirds of the wing but are lost before reaching the costa. The first is inward of the discal spot and rather even in its course; the second is somewhat irregular, runs toward the discal spot to M_1 , then curves outwardly around it. Subterminal line white, broad and wavy; between it and the extradiscal line a band of the white ground color is plainly marked. Terminal line sharply indicated, scalloped as on fore wings though not so evenly. Fringe as in fore wings. Discal spot rather large, linear solid. Beneath, even grayish-white, sometimes with a subapical brown cloud, speckled with faint brown atoms and marked along the costa of primaries by brown flecks. Terminal line distinct; discal spots present on all wings.

Types. — One male in the Brooklyn Institute Museum ; co-types, two males in the Academy of Natural Sciences, Philadelphia and in my own collection.

Habitat. — Palmerlee, Cochise Co., Ariz., July (Doll) ; Carr Canyon, Huachuca Mts., Cochise Co., August (Skinner).

This a very distinct and contrastingly marked species, not easily confounded with anything I know. It may be readily recognized by the three black lines on the primaries widely separated and equidistant to each other on the costa but touching or almost so just above the inner margin. It is recorded as *Selidosema polygrammaria* Pack. in Science Bulletin, Vol. I, p. 208, but as far as I know that species has only been taken in the North Atlantic States.

16. *Stergamatæa dolliata*, new species.

Expanse, ♂ 38, ♀ 42 mm. Head, thorax, abdomen and ground color of wings dark flesh color with a brownish cast, the latter sprinkled over with dark scales, especially in outer areas. Palpi upturned, end member small, knob-like. Outer margin of fore wings almost even in male, but angled at vein M_3 in female. Primaries with an intradiscal somewhat broken and diffuse brownish band crossing the wing a little less than one third out from base, best marked on the costa and near the inner margin. Median shade quite broad, formed by a heightening in the ground color and crossing the wing a little outwardly of the discal spot. Extradiscal line an incomplete blackish-brown band beginning on costa less than one third in from apex and extending curvedly outward to middle of wing then inwardly curved to inner margin, appearing as large irregular blotches on costa, between veins M_2 and M_3 and between Cu_2 and inner margin ; between these blotches on veins M_1 and Cu_1 are smaller spots, each with a whitish center, and through the middle of the larger blotches a whitish, denticulate line passes. Subterminal line brownish-black, incomplete, denticulate, best marked opposite the large blotches of the extradiscal band. Terminal lost in the sprinkling of dark scales over this region of the wing. Fringe colorous with ground color. Discal spot black, rounded, distinct. Secondaries with median shade, and extradiscal and subterminal lines continuous with those of primaries and also incomplete, the extradiscal line marked on the four median veins by brown spots with whitish centers, the subterminal line nearer complete and more diffuse. Terminal line indistinctly evident on lower part of outer margin as a brownish, scalloped line. Discal spot distinct. Beneath, pale even flesh color, marked on the costa of primaries with brownish at the origin of the transverse lines of above, and with a broad, brownish, submarginal cross-band on both wings sharply denticulate outwardly but blending abruptly with the ground color inwardly. Discal spots present, small.

The above describes more particularly the male : the female is less sharply marked and the whitish line passing through the large blotches forming the extradiscal line is scarcely evident.

Types. — One male and one female in the Brooklyn Institute Museum.

Habitat. — Palmerlee, Cochise Co., Ariz., in June.

Differs from *S. inornata* Hulst in the color of the background which in that species is pale yellow, and in the cross lines being broad and incomplete, not fine and continuous. It has been erroneously recorded in Science Bulletin, Vol. I, p. 209, as *Stergamataea inornata*. The species is named after Mr. Jacob Doll, who collected the specimens.

A male in good condition from Wilgus, Cochise Co., Ariz., is in the U. S. National Museum and has been made co-type.

17. *Gonodontis ectrapelaria*, new species.

Expanse, 38-45 mm. Entire moth from above dark fuscous gray, the wings and abdomen sprinkled over with numerous black scales, the space between the antennæ sometimes light gray to almost white. Two lines cross the primaries, the intra- and extradiscal, both of them rather broad, black and prominent. The first begins on costa one fourth out from base and curves far out toward center of wing, then curves inward to inner margin. The second begins on costa less than one fourth in from apex and after running toward outer margin for a short distance bends inward and extends slightly sinuous to inner margin, the last outward curve quite decided before meeting the edge. The outer area is traversed by a heavy, irregular, black shading, the inner edge of which is diffused, the outer edge defined. Outward of this shade line the ground color of wing is a little lighter than the rest. Outer margin faintly and evenly scalloped. Fringe brownish. Secondaries with a broad, almost straight, slightly diffuse, black line through its center which extends sometimes completely across the wing and sometimes becomes obsolete on the costal region. A broad shade line in the outer area continuous with that of primaries but much fainter. Outer margin and fringe as in fore wings. Large black discal spots on both wings. Beneath, much paler than above, the transverse lines not indicated, but the outer shade lines strongly reproduced on both wings; discal spots present.

Types. — Male and female in the collection of the writer; co-type in Brooklyn Institute Museum and others will be placed in Rutgers College collection.

Habitat. — Stockton, Utah, July 2, August 9-26 (Spalding); Beaver Canyon, Utah, August (Doll).

Very different from all described American species. The two cross lines seem to be easily abraded and are then scarcely traceable on the dark ground color, but the outer shade and discal spots remain prominent.